

## ABSTRACT

Effective use of bandwidth resources such as wavelengths and paths are facilitated and the release of the fixed relationship of one client to one client is enabled by a WDM (Wavelength Division Multiplexed) network system executing automatic wavelength control using IP addresses. The WDM (Wavelength Division Multiplexed) network system includes an optical wavelength division multiplexed (WDM) transmission path, a plurality of sub-networks each accommodating a client, and a plurality of WDM nodes each corresponding to each of the plurality of sub-networks respectively and connected with the optical wavelength division multiplexed transmission path, the plurality of WDM nodes each including a wavelength converting unit for controlling oscillation frequencies depending on a destination address for which the communication destination is identified by an IP address and a cross-connecting unit for cross-connecting the route directed to an adjacent WDM node for connecting with the communication destination.